REMARKS

Reconsideration of the rejections set forth in the Office Action is respectfully requested.

Rejection under 35 USC 103

Claims 1-5, 8-24, and 27 were rejected under 35 USC 103 as unpatentable over Garahi, et al. (U.S. Patent Application Publication No. 2003/0091010) in view of Csapo (U.S. Patent Application Publication No. 2004/0253984), and further in view of Wirbel "IEEE 802.16 Spec Could Disrupt Wireless Landscape." This rejection is respectfully traversed in view of the amendments to the claims and the following arguments.

This application relates to a mobile inter-mesh communication point that is configured to operate on two wireless mesh networks at the same time. Applicants proposed in this application to use a first level ad-hoc wireless mesh network to implement an access network and to use a second level ad-hoc wireless mesh network to implement a backhaul network that would connect the access network to higher bandwidth communication resources. The first level wireless mesh network will evolve over time as users move into and out of the network. (Specification at page 8, lines 23-25). Similarly, the second level wireless mesh network will evolve as the inter-mesh network access points move while deployed in vehicles. (Specification at page 6, lines 26-29). Applicants proposed to allow the inter-mesh communication points to be mobile, so both the first and second level wireless mesh networks may move and adapt with people using the networks.

Garahi teaches that the mobile terminals 118 and wired IAPs form an "ad-hoc network as described in U.S. patent application Ser. No. 09/897,790." (Garahi at Par. 30). The patent application referred to by Garahi in Paragraph 30 has since issued as U.S. Patent No. 7,072,650 (Stanforth). The ad-hoc wireless network described in Stanforth has an ad-hoc 802.11 wireless network connected to the PSTN or cellular network via a gateway. Since Garahi states that his mobile/wired terminals operate as taught by Stanforth, it appears that this portion of Garahi teaches a one level ad-hoc wireless network connected to the PSTN/cellular network via a gateway.

When mobile IAPs are used, Garahi teaches that the mobile IAPs communicate with the wired IAPs using either a microwave backhaul or using a "self forming self healing radio access technology as described in U.S. patent application Ser. No. 09/897,790 [Stanforth]." (Garahi at Par. 38 emphasis added). Stanforth shows an ad-hoc 802.11 wireless access network connected via a gateway to a cellular network, but does not show a second level ad-hoc wireless mesh network. Accordingly, this portion of Garahi does not teach or suggest two levels of ad-hoc mesh networks, but rather teaches the use of a single level ad-hoc mesh network.

In Fig. 5 of Garahi, the IAP 132 is disposed in vehicle 146 (see Paragraph 37), and "operates as a router to enable intercommunication between mobile terminals 118 which can be hand-held or present in other vehicles 154, 156." (Garahi at Par. 39). Thus, in Fig. 5 the IAP is functioning as a router in the first level mesh network to allow user terminals such as handheld and car-based terminals in the first level mesh network to communicate with each other. This doesn't address the backhaul.

In connection with Fig. 6, Garahi states that "the mobile IAPs 132 can use each other in conjunction with another user terminal 118 in the ad-hoc network, such as a user terminal 118 present in a vehicle 154, to connect to a fixed IAP, such as IAP 108." Since the user terminals 118 are operating in the first level mesh network, this portion of Garahi also teaches that the fixed and mobile IAPs are communicating with each other using the first level meshed network. Specifically, Fig. 6 shows the mobile network bridging communication from one mobile IAP to another mobile IAP which then forwards the communication to the fixed IAP. This shows that the mobile unit and mobile IAPs are communicating with each other using the same mesh network as that being used by the mobile terminal and, hence, that the communication that occurs between the fixed and mobile IAPs is all part of the first level mesh network.

In the rejection, the Examiner has taken the position that Garahi teaches a mobile inter-mesh communication point citing Fig. 3, and paragraph 24 of Garahi. However, as discussed above, Garahi actually doesn't teach two levels of mesh networking. Rather, Garahi teaches only one level of mesh networking. Garahi likewise references another patent for supporting details associated with the underlying network, and that referenced patent also shows a single level ad-hoc mesh network. While Fig. 3 does show a mobile IAP with multiple transceivers and antennas, that fact alone does not indicate that the mobile IAP is operating on multiple levels of wireless mesh networking. Rather, it would appear that the mobile IAP would use one transceiver to communicate with the 802.11 ad-hoc wireless mesh network and would use another transceiver to communicate with the point-to-point microwave backhaul. This does not indicate that the backhaul is organized as an ad-hoc wireless mesh network.

Examiner acknowledges that Garahi fails to point out a first wireless mesh network port using at least one of the 802.11x standards and a second wireless mesh network port using one of the 802.16x standards, and that Garahi fails to teach/suggest using different wireless mesh networks for the access and backhaul. However, the Examiner has taken the position that Csapo teaches a device that operates on two ad-hoc wireless mesh networks, one of which is 802.16.

However, aspect of Csapo which relates to use of 802.16 as a backhaul technology has a 102(e) date that is after the filing date of this application. Accordingly, the portion of the Csapo reference cited by the Examiner cannot be cited against the claims of this application.

This application was filed on October 3, 2003. Csapo was filed on March 5, 2004, approximately five months after the filing date of this application. Csapo is a Continuation-in-part of application No. 10/284,674 which was filed before the filing date of this application.[1] For Csapo to be validly applied, the Examiner must show that the subject matter relied on in the Csapo CIP application was also disclosed in the Csapo Parent Application. See MPEP 2136.03(IV):

> For prior art purposes, a U.S. patent or patent application publication that claims the benefit of an earlier filing date under 35 U.S.C. 120 of a prior nonprovisional application would be accorded the earlier filing date as its prior art date under 35 U.S.C. 102 (e), provided the earlier-filed application properly supports the subject matter relied upon in any rejection in compliance with 35 U.S.C. 112, first paragraph. In other words, the subject matter used in the rejection must be disclosed in the earlier-filed application in compliance with 35 U.S.C. 112, first paragraph, in order for that subject matter to be entitled to the earlier filing date under 35 U.S.C. 102(e).<

In the rejection, the Examiner stated that the Csapo CIP teaches a first wireless mesh network, and a second wireless mesh network which is used as a backhaul to the first wireless mesh network and is implemented using 802.16. The Examiner is correct that the Csapo CIP includes a reference to 802.16 (see Csapo CIP at Paragraph 37). However, this subject matter is not supported by the Csapo Parent Application. Specifically, the Csapo Parent Application does not mention IEEE 802.16. Accordingly, since the subject matter of the Csapo CIP that was relied on by the Examiner was not supported by the Csapo Parent application, the portion of the Csapo CIP that was relied on by the Examiner is not entitled to 102(e) date of the Csapo Parent Application. Thus, the rejection is prima facie improper.

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[1] The original Csapo patent was published as U.S. Publication No. 2003/0202497. For clarity, the earlier Csapo reference (2003/0202497) will be referred to in these remarks as "Csapo Parent Application" and the later Csapo reference (2004/0253984) which was cited by the Examiner in the rejection will be referred to in these remarks as "Csapo CIP."

The Examiner also stated that the Csapo Parent application teaches a second ad-hoc wireless mesh network (backhaul network), citing Csapo at paragraph 37. In paragraph 36, Csapo CIP states that the mobile station 246 is capable of communicating with a BTS 223 via a CDMA2000 link, an EDGE link, a WCDMA link, or an IEEE 802.16e[2] link. By referring to these connections as "links" Csapo implies point-to-point connection and implies that the backhaul is not an ad-hoc wireless mesh network as claimed.

In paragraph 37 of the Csapo CIP application, Csapo teaches that the access points communicate with multiple MS via 802.11 and that each of the access points will communicate with the backhaul via a CDMA2000, 1X/EV/DO, EDGE, WDCMA or IEEE 802.16e[3] "link". The text of paragraph 37 and Fig. 2 which is described in that portion of Csapo, does not teach or suggest that the BTSs should be organized as an ad-hoc mesh network. Rather, Fig. 2 shows a point-to-point link from each access point to one of the BTSs, and then shows wired point-to-point links from the BTSs to the BSC. The BTSs are not discussed as communicating with each other and the fact that the BTSs are wired via fixed links to the BSC indicates that the BTSs are not forming an ad-hoc wireless network.

In the Office Action, the Examiner stated that the combination of Garahi and Csapo fails to specifically point out the use of 802.16x as a backhaul and posits that this is taught by Wirbel, citing paragraph 3 of Wirbel.

In paragraph 3, Wirbel states "In an ideal world, Marks said, 802.16a can serve as a backbone for 802.11 hot-spots…" At the time of publication, 802.16a was a last mile fixed broadband access technology. 802.16a did not support mobility, which was being addressed by the working group developing 802.16e (Wirbel at paragraph 6). Note that the 802.16e task group was in the process of addressing mobility, but that standard was not finalized until 2005. Further, Wirbel states that the 802.16e group was not attempting to address high-speed handoffs in an automotive environment (Wirbel at paragraph 7 "When outsiders hear of such mobility goals, many assume that 802.16e is going after any broadband wireless metro market that might have been served by nascent 3G cellular services. In reality, Marks said, the task group has no interest in high-speed handoff in an automotive environment…"). Thus, Wirbel does not teach or suggest the use of 802.16x in a mobile environment and, indeed, teaches away from use of 802.16x in a mobile environment. Further, the generic reference to the use of 802.16x for a "backhaul" does not teach or suggest that the backhaul should be organized as an ad-hoc wireless mesh network.

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[2] As noted above, the reference to 802.16e is not included in the Csapo Parent application.

[3] As noted above, the reference to 802.16e is not included in the Csapo Parent application.

Conclusion

The Examiner cited a combination of Garahi, Csapo, and Wirbel as teaching a first level ad-hoc wireless mesh network implementing an access network and a second level ad-hoc wireless mesh network implementing a backhaul network for the access network. Applicants respectfully submit that this combination of references does not support the rejection. Specifically:

- Garahi teaches a single level ad-hoc access wireless network implemented using 802.11. The backhaul in Garahi is T3, fiber, or point-to-point microwave, not an ad-hoc wireless mesh network.
- Csapo, like Garahi, teaches a single level ad-hoc access wireless network implemented using 802.11. Csapo teaches that the backhaul should be implemented using CDMA2000, 1X/EV/DO, EDGE, WDCMA. The Csapo CIP teaches the use of 802.16e as a backhaul, but that portion is not supported by the Csapo parent and, hence, is not prior art to this application. Neither the Csapo CIP nor Csapo Parent teach or suggest that the backhaul should be implemented using an ad-hoc wireless mesh network.
- Wirbel states that 802.16 can be used as a backhaul for 802.11 hotspots, but only teaches fixed wireless and expressly teaches away from using 802.16 for connecting to high-speed mobile hotspots. Further, Wirbel does not teach or suggest that the backhaul should be implemented using an ad-hoc wireless mesh network.

Thus, none of the references teach or suggest use of an ad-hoc wireless mesh network as a backhaul network. Further, the only reference that mentions 802.16 teaches away from using it as a backhaul where the hotspots are mobile. In view of these teachings, applicants respectfully submit that it would not have been obvious to implement a two level mesh network as claimed in the independent claims set forth above. Accordingly, applicants request that the rejection under 35 USC 103 be withdrawn.

In view of foregoing remarks, it is respectfully submitted that the application is now in condition for allowance and an action to this effect is respectfully requested. If there are any questions or concerns regarding the amendments or these remarks, the Examiner is requested to telephone the undersigned at the telephone number listed below.

Extension of Time

Applicants request a two month extension of time to respond to the outstanding Office Action. Payment for the extension of time is being submitted herewith. If any additional fees are due in connection with this filing, the Commissioner is hereby authorized to charge payment of the fees associated with this communication or credit any overpayment to Deposit Account No. 141315 (Ref: 16127ROUS01U).

Respectfully Submitted

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